Claims

We claim:

1. A multiplexing/ demultiplexing module configured N channels, the module comprising:

at least a concave mirror placed in such way that an incident traveling distance of a light beam to the concave mirror is equal or substantially similar to a reflective traveling distance of the light beam from the concave mirror, wherein any titling errors carried in the light beam are compensated by the light beam going to and reflecting from the concave mirror.

2. The module as recited in claim 1, further comprising:

at least N optical filters, each specified for one of the N channels; and

wherein the concave mirror is placed right after a half of the N optical filters.

3. The module as recited in claim 2, wherein the titling errors are symmetrically compensated.

4. The module as recited in claim 3, wherein the concave mirror has a shape substantially similar to a portion of a sphere, the titling errors successively introduced by a first half of the N filters are successively reduced over a second half of the N filters.

5. The module as recited in claim 3, wherein the concave mirror has a shape substantially similar to a portion of an oblate spheroid, the titling errors

successively introduced by a first half of the N filters are successively compensated over a second half of the N filters.

6. The module as recited in claim 1, wherein the concave mirror is made in accordance with a sphere or an oblate spheroid.

7. The module as recited in claim 1, wherein the concave mirror has a shape in accordance with a sphere or an oblate spheroid.

8. The module as recited in claim 1, wherein each of the titling errors includes an angular error and a lateral shift error as a result of one of the N filters being tilted.

9. A multiplexing/ demultiplexing module configured N channels, the module comprising:

at least N optical filters, each specified for one of the N channels and transmitting an in-band signal and reflecting all out-band signals; and

N concave mirrors, each placed in front of one of the N optical filters to receive the out-band signals for correcting titling errors carried in the out-band signals as a result of the one of the N optical filters being titled.

10. The module as recited in claim 9, wherein the concave mirrors are all in identical shape.

11. The module as recited in claim 10, wherein the shape is in accordance with a sphere or an oblate spheroid.

12. The module as recited in claim 10, further comprising N collimators, each associated with one of the N optical filters and receiving the in-band signal of the one of the N optical filters.

13. A method for making a multiplexing/ demultiplexing module configured N channels, the method comprising:

providing at least a concave mirror; and

placing the concave mirror in such way that an incident traveling distance of a light beam to the concave mirror is equal or substantially similar to a reflective traveling distance of the light beam from the concave mirror, wherein any titling errors carried in the light beam are compensated by the light beam going to and reflecting from the concave mirror.

14. The method as recited in claim 13, further comprising providing a first half of N optical filters for multiplexing/ demultiplexing a first half of the N channels, each of the N optical filters specified for one of the N channels and transmitting an in-band signal and reflecting all out-band signals.

15. The method as recited in claim 14, wherein the out-band signals from the first half of N optical filters are impinged upon the concave mirror and reflected as a reflected beam that goes through the second half of the N optical filters for multiplexing/ demultiplexing a second half of the N channels.

16. The method as recited in claim 15, wherein titling errors successively introduced by the first half of the N filters are successively compensated as the reflected beam goes through the second half of the N filters.

17. The method as recited in claim 16, wherein the concave mirrors are all in identical shape.

18. The method as recited in claim 17, wherein the shape is in accordance with a sphere or an oblate spheroid.

19. The method as recited in claim 16, wherein each of the titling errors includes an angular error and a lateral shift error as a result of one of the N filters being tilted.